180 to about 240, about 180 to about 270, about 180 to about 300, about 210 to about 240, about 210 to about 270, about 210 to about 300, about 240 to about 270, about 240 to about 300, or about 270 to about 300. In some embodiments, the reference level is an IHC-score of about 1, about 30, about 60, about 90, about 120, about 150, about 180, about 210, about 240, about 270, or about 300. In some embodiments, the reference level is an IHC-score of at least about 1, about 30, about 60, about 90, about 120, about 150, about 180, about 210, about 240, or about 270. In some embodiments, the reference level is an IHC-score of at most about 30, about 60, about 90, about 120, about 150, about 180, about 210, about 240, about 270, or about 300. In some embodiments, the reference level is or exceeds an IHC-score of about 10 to about 100.

[0007] In certain embodiments, at least one assay comprises an enzyme linked immunosorbent assay (ELISA). In certain embodiments, the ELISA detects electrochemiluminescence. In certain embodiments, the reference level is about 1 pg/mL to about 10 pg/mL of LIF in an undiluted biological sample from the individual. In certain embodiments, the reference level of LIF corresponds to the 5^{th} percentile of LIF protein expression in LIF positive cancers of the same type. In certain embodiments, the reference level of LIF corresponds to the 10^{th} percentile of LIF protein expression in LIF positive cancers of the same type. In certain embodiments, the reference level of LIF corresponds to the 5^{th} percentile of LIF protein expression in a representative sample of human cancers. In certain embodiments, the reference level of LIF corresponds to the 10^{th} percentile of LIF protein expression in a representative sample of human cancers. In certain embodiments, the level of LIF is a LIF mRNA level and determining the level comprises performing at least one assay that detects LIF mRNA or receiving the results of at least one assay that detects LIF mRNA. In certain embodiments, the reference level is a level corresponding to the 5^{th} percentile of LIF mRNA expression in cancers of the same type. In certain embodiments, the reference level is a level corresponding to the 10^{th} percentile of LIF mRNA expression in cancers of the same type. In certain embodiments, the reference level is a level corresponding to the 5^{th} percentile of LIF mRNA expression in a representative sample of human cancers. In certain embodiments, the reference level is a level corresponding to the 10^{th} percentile of LIF mRNA expression in a representative sample of human cancers. In certain embodiments, the reference level of LIF corresponds to the 25^{th} percentile of LIF protein expression in LIF positive cancers of the same type. In certain embodiments, the reference level of LIF corresponds to the 50^{th} percentile of LIF protein expression in LIF positive cancers of the same type. In certain embodiments, the reference level of LIF corresponds to the 25^{th} percentile of LIF protein expression in a representative sample of human cancers. In certain embodiments, the reference level of LIF corresponds to the 50^{th} percentile of LIF protein expression in a representative sample of human cancers. In certain embodiments, the level of LIF is a LIF mRNA level and determining the level comprises performing at least one assay that detects LIF mRNA or receiving the results of at least one assay that detects LIF mRNA. In certain embodiments, the reference level is a level corresponding to the 25^{th} percentile of LIF mRNA expression in cancers of the same type. In certain embodiments, the reference level is a level corresponding to the 50^{th} percentile of LIF mRNA expression in cancers of the same type. In certain embodiments, the reference level is a level corresponding to the 25^{th} percentile of LIF mRNA expression in a representative sample of human cancers. In certain embodiments, the reference level is a level corresponding to the 50^{th} percentile of LIF mRNA expression in a representative sample of human cancers. In certain embodiments, the level of LIF is a LIF DNA level and determining the level comprises performing at least one assay that detects LIF DNA or receiving the results of at least one assay that detects LIF DNA. In certain embodiments, at least one assay comprises polymerase chain reaction (PCR). In certain embodiments, the PCR comprises quantitative PCR. In certain embodiments, the at least one assay comprises a sequencing reaction. In certain embodiments, the sequencing reaction comprises a next-generation sequencing reaction. In certain embodiments, the biological sample comprises a blood sample. In certain embodiments, the blood sample is plasma. In certain embodiments, the blood sample is serum. In certain embodiments, the biological sample comprises a tissue sample. In certain embodiments, the biological sample is a tumor biopsy. In certain embodiments, the method further comprises determining a DNA, mRNA, or protein level of an immunomodulatory molecule that exceeds a reference level of the immunomodulatory molecule. In certain embodiments, the method further comprises determining a DNA, mRNA, or protein level of an immunomodulatory molecule that is below a reference level of the immunomodulatory molecule. In certain embodiments, the immunomodulatory molecule is selected from an mRNA transcribed from or a protein produced from the list consisting of MHCII, CXCL9, CXCL10, CXCR3, PD-L1, CCL7, CCL2, CCL3, and CCL22. In certain embodiments, the method further comprises determining a level of a Type II macrophage (M2) marker that exceeds a reference level of DNA, mRNA, or protein of the Type II macrophage (M2) marker. In certain embodiments, the M2 marker is an mRNA transcribed from or a protein produced from the list consisting of CD206, CD163, PF4, CTSK, and ARG1. In certain embodiments, the method further comprises determining a DNA, mRNA, or protein level of LIF receptor (LIFR) that exceeds a reference level of LIFR. In certain embodiments, the level of LIFR is detected on an immunomodulatory cell. In certain embodiments, the human cancer is selected from the list consisting of non-small cell lung cancer, ovarian cancer, kidney cancer, bladder cancer, pancreatic cancer, prostate cancer, genitourinary cancer, gynecologic cancer, gastrointestinal cancer, endocrine system cancer, glioblastoma multiforme, breast cancer, melanoma, colorectal cancer, bile duct cancer, cervical cancer, endometrial cancer, head and neck squamous cell carcinoma, and combinations thereof. In certain embodiments, the human cancer is selected from the list consisting of non-small cell lung cancer, ovarian cancer, kidney cancer, bladder cancer, and combinations thereof. In certain embodiments, the human cancer is selected from the list consisting of pancreatic cancer, prostate cancer, glioblastoma multiforme, and combinations thereof.

[0008] In another aspect, described herein, is a method of treating an individual with cancer with a therapeutic anti-leukemia inhibitory factor (LIF) antibody comprising determining a level of LIF that exceeds a reference level in a biological sample from the individual, and administering a therapeutic amount of the anti-LIF antibody. In certain